



# THE APPLICATION OF FRAGMENTATION LEARNING METHOD IN MATHEMATICS CURRICULUM IN THE UNIVERSITY

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## ABSTRACT

The arrival of the mobile Internet era, promoting the "fragmentation" of information acquisition and information consumption, "fragmentation" has become one of the main features through mobile media. The information of fragmentation brought by mobile media is too unfocused, and could specifically interact after regular integration. Mathematics is a subject that contents are multifarious and disorderly, at the same time, having logical and well-structured feature. Classroom learning has been unable to meet the individual, community and society needs. As response to the development of society in the future, everyone should be a self-directed or lifelong learner. With autonomous learning research framework of Zimmerman, according to the six core issues, create special pieces of independent learning framework based on the method of fragmentation learning. In this paper, the process of the establishment of independent learning framework, first set up a semantic diagram model based on system learning, according to the model, knowing what you're learning, so as to carry out the fragmented learning of University Mathematics Curriculum.

**KEY WORDS:** Fragmentation; Mathematics; Autonomic learning; Semantic diagram model.

### 1. Introduction:

With the development of technology and the progress of the era, the era of mobile Internet coming. Enhanced network era has brought diversification of mobile media, the choice of more information and information consumption, it brought information acquisition and information consumption of "fragmentation". According to the relevant data showed that as of June 2016, the scale of China's Internet users reached 710 million, among the mobile phone users reached 656 million, only through the mobile phone Internet users accounted for 24.5%; the use of mobile phone network information, mobile phone network news accounted for 78.9%, accounted for 67.1% of mobile phone network video, mobile phone network literature accounted for 42.8% and online education accounted for 10.58%; in November 2015 the relevant survey found that users of mobile devices every 26.5% time use equipment more than 5 hours, including the use of non-internet services. Fragmented information generated fragmented memory, causing fragmentation of learning.

In order to cope with the challenges of social development, and the realization of individual adaptation function and innovation function, everyone should keep learning. On the other hand, in a highly social, personalized and open development technical environment, individual learning awareness increasing, personalized desire "unprecedented expansion". So in the consciousness and unconscious, turning into a lifelong learning or autonomous learning. As a student, in addition to have a system in school, unity and integrity of the learning time, most of the time are broken and scattered, making time becomes irregular, fragmentary and discrete.

Mobile learning [1-5] based on mobile media helps learners to use fragmentation time every little bit to enable individuals to develop their opportunity fully, to promote the realization of self-worth. Mathematics plays an important role in production and life, but also the basic subject of scientific research; mathematical language as a way of logical thinking, having abstract, rigorous and systematic characteristics. Rigorous reasoning [6-9] and pursuit of perfection plays an important role in improve the people's rational thinking.

University mathematics curriculum including advanced mathematics, analytic geometry, advanced algebra and probability statistics, etc. This course is a professional learning and knowledge consistency strongly features, is not a short duration of time can be completed. The university class teaching rhythm quickly, the content is relatively large, which requires students to spend extra time and resources to learn the course. The rules and integrity of time will be interrupted, fragmentation of learning method contribute to the combination of time. Combination of fragmentation learning and system learning in schools constructing complete knowledge system of university mathematics course.

### 2. The connotation and outline of debris learning method:

"Fragmentation" refers to the relatively complete thing is divided into many scattered block and unsystematic. In the context of the Internet, people in a manifestation of the demand of information is the fragmentation of learning [10-12]. So far, no one on the fragmentation of learning to define. The following through the description of the person language: professor Wang Zhuli believes that: the fragmentation of learning means that learners use fragmentation time, resource fragmentation and fragmentation medium to formal and informal learn. Zhu Zhiting professor said: learning fragmentation begin in the fragmentation of informa-

tion, and then bring the knowledge fragmentation, fragmentation of time, space fragmentation, media fragmentation and relationship fragmentation. No matter what kind of argument, all emphasizing randomness and scattered of fragmentation learning. So you can know that the fragmentation of learning is a learning way of fragmentary knowledge content, referring to learners in the natural situation according to the learning needs and using diversified learning media, scattered time and distributed space.

"Fragmentation" is a by-product of the Internet technology, promoting everyone to learn at any one's fingertips. Fragmentation of learning is relatively systematic learning. Learning system are methods to promote the all-round development of students refers to the use of the principle of integrity grasp the whole course of study, using orderly principle to build a complete cognitive structure and the principle of openness to construct educational knowledge system.

### 3. The characteristics of mathematics curriculum in university:

College mathematics is a basic course in various levels and disciplines, having an important application in a variety of disciplines such as Chinese linguistics, biology, economics, engineering, aesthetics, history and computer mathematics. In university mathematics curriculum, derivative, differential, mean value theorem and indefinite integral are the basic knowledge in mathematical analysis. They have strong logic, content and structure characteristics. College mathematics knowledge is a chain, one link error may lead to difficulties for later learning. Have much basic knowledge of mathematics. The knowledge is difficult to apply, analysis, synthesize and evaluate. Because of the strict logic, each knowledge points cannot be fuzzy and accurate to construct the complete personal knowledge structure.

Simple rote learning cannot cope with the mathematics curriculum. In the middle of the new era more thing is required to cultivate personal mathematics accomplishment. For learning mathematics curriculum better, first of all having a basic understanding of the mathematical background and mathematical culture, that are person related knowledge, the background and origin of vocabulary. Thinking the related knowledge in specific situations, helping knowledge memorization. Then establishing other knowledge links through personal logical thinking to finish the logical thinking. Master basic knowledge of learning is a matter of course. When the mathematics knowledge accumulated to a certain extent, contacting with things from the outside world have innovation.

### 4. Application and mode of application:

University mathematics classroom courses cannot satisfy the individual and the times demand. Complete extracurricular learning time sometimes is relatively small, debris learning based on mobile media is good for using a bit of time and exerting individual initiative in fragmentation time. Have an further improvement of academic performance.

The premise for constructing a complete personal knowledge system is become an autonomous learner. For autonomous learning, Zimmerman put forward a research frame of autonomous learning. The framework includes six core issues: 1) why learn; 2) how to learn; 3) what to learn; 4) when to study; 5) where to learn; 6) with whom to learn.

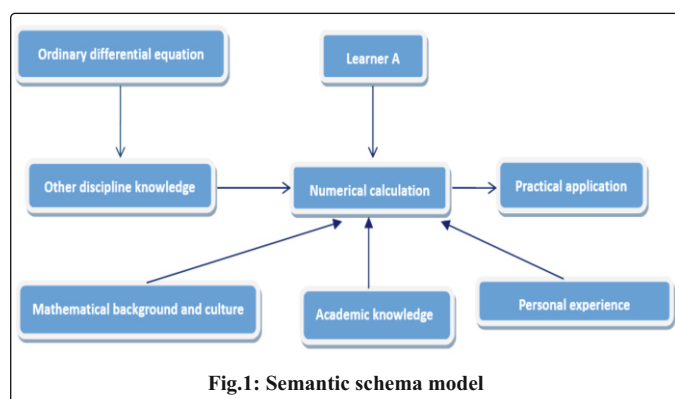
Now based on the fragmentation feather of the fragmentation learning method, a

special autonomous learning framework is established. 1) As an autonomous learner, knowledge learning has personal motivation, that is, knowing why. 2) Due to the random characteristics of fragmentation learning, in a specific situation, you can learn anywhere at any time, that is, when to learn, where to learn. 3) On the basis of systematic learning, building personal semantic schema model based on the existing knowledge structure. (In specific practice, this is the process of silence on the basis of a clear understanding of the individual.) Through the semantic schema model to understand individual doubts and puzzles, understand their own learning content, that is, what to learn. 4) By means of learning content and personal learning environment, choose learning methods and helpers, that is, how to learn and with who to learn. Such a complete autonomous learning process can be achieved.

### 5. Case analysis:

In daily life, it's a common phenomenon to learn anytime and anywhere. An example is given to illustrate the case. On the bus, because it's not rush hour, there are fewer people in the bus. There are two students now: students A and B, they are both students majoring in mathematics and applied mathematics. The day is Wednesday morning and there's only one class in the morning. The name of the course is numerical calculation method and experiment. Student A cannot finish classroom test well in class, hoping in the bus debris time, mastering the knowledge point and avoiding again after making mistakes. In the course of numerical calculation, the knowledge points of the quizzes come from the ordinary differential equations. Student A establishes the semantic schema model (Fig.1) in the heart. According to the situation at that time: there are no textbooks, but with the mobile phone, Student A uses mobile phones to search for the ordinary differential knowledge points involved in quizzes--the method to solve the equation like  $dy/dx=P(x)y+Q(x)$ . Learning the knowledge independently and communicating with the student B.

Through the autonomous learning in the personal environment, the application of fragmentation learning method in college mathematics curriculum is fully realized, and good results are obtained. This case is only one aspect of the knowledge of other subjects in the semantic schema. The same reason can be obtained that mathematical background, mathematical culture and academic knowledge can be expanded in a similar way and produce good practical application effect.



### 6. Conclusion:

In the era of big data, the Internet provides unlimited possibilities for learners. The Internet allows ordinary people across major barrier for hundreds of years of shaping, authority evaluation and path dependence to get equal and full opportunities. The fragmented learning method based on mobile media will help autonomous learners to use every little bit of time. Constructing a more complete personalized knowledge structure system according to the knowledge required by independent.

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